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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,502	03/16/2001	Kazuyuki Tadatomo	210013	3944

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EXAMINER
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ORTIZ, EDGARDO

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 12/03/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/787,502

Applicant(s)  
Tadatomo Et.al.

Examiner  
Edgardo Ortiz

Art Unit  
2815



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Mar 16, 2001
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some\* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 20) ☐ Other: \_\_\_\_\_

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### DETAILED ACTION

This Office Action is in response to an application filed March 16, 2001.

#### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1-12 are rejected under 35 U.S.C. § 102 (e) as being anticipated by Tadao (Japanese Patent No. 11-195810). With regard to Claim 1, Tadao teaches a semiconductor light receiving element comprising a light receiving layer (14) comprising a GaN group semiconductor and an electrode (20) formed on one surface of the light receiving layer as a light receiving surface (17) in such a manner that the light can enter the light receiving layer.

With regard to Claim 2, Tadao teaches a light receiving element that is a Schottky barrier type light receiving element, said light receiving layer (14) is a first conductivity type layer, said electrode formed on the light receiving surface comprises at least a Schottky electrode, and a total of boundary lines between areas of the light receiving surface covered with the Schottky electrode and exposed areas is longer than the length of the outer periphery of the light receiving surface.

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With regard to Claim 3, Tadao teaches a Schottky electrode (20) having a wiring pattern formed by strip conductors in combination.

With regard to Claim 4, Tadao teaches a wiring pattern having strip conductors with a width of 0.1  $\mu\text{m}$  - 2000  $\mu\text{m}$ .

With regard to Claim 5, Tadao teaches a wiring pattern that is a comblike pattern.

With regard to Claim 6, Tadao teaches a light receiving layer (14) that is an uppermost layer of a laminate comprising one or more layers comprising a first conductivity type GaN group semiconductor formed on a crystal substrate (12), which element comprising an ohmic electrode (24) formed on a layer other than the light receiving layer.

With regard to Claim 7, Tadao teaches a crystal substrate (12) that is made from a conductive material and the ohmic electrode (24) is formed from on the crystal substrate.

With regard to Claim 8, Tadao teaches a light receiving element that is a photoconductive type light receiving element, a light receiving layer (14) that is a first conductivity type layer, an electrode (24) formed on a light receiving surface that is an ohmic electrode of one polarity, which element comprising an ohmic electrode of the other polarity on the other surface of the

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light receiving layer directly or via a first conductivity type and low resistance GaN group semiconductor layer.

With regard to Claim 9, Tadao teaches an ohmic electrode (24) of one polarity that is formed as a transparent electrode to permit entry of light.

With regard to Claim 10, Tadao teaches an ohmic electrode (24) of one polarity that is an opaque electrode and the light receiving surface (17) has an area covered with the electrode and an incident area not covered with electrode to permit entry of the light.

With regard to Claim 11, Tadao teaches an ohmic electrode (24) of the other polarity formed via a first conductivity type and low resistance GaN group semiconductor layer, the low resistance GaN group semiconductor layer and the light receiving layer are successively formed on a crystal substrate (12), an upper surface of the low resistance GaN group semiconductor layer is partially exposed, and the ohmic electrode of the other polarity.

With regard to Claim 12, Tadao teaches a crystal substrate (12) that is a sapphire crystal substrate, the low resistance GaN group semiconductor layer is an n<sup>+</sup> GaN group semiconductor layer, the light receiving layer (14) is an n<sup>-</sup> GaN group semiconductor layer, and the ohmic electrode (24) of one polarity formed on the light receiving surface is a comblike electrode.

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*Conclusion*

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Edgardo Ortiz (Art Unit 2815), whose telephone number is (703) 308-6183. In case the Examiner can not be reached, you might call Supervisor Eddie Lee at (703) 308-1690. Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 receptionist whose telephone number is (703) 308-0956.

EO/AU 2815

11/17/01



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
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